FIELD PACK-UP UNITS PROVIDE INCREASED MOBILITY

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Introduction

The next time you visit your local automobile supply store, take a look at the amount of stocked parts. Now, put yourself in the shoes of the manager when he or she is told that to maintain their customer base, they must be prepared to move when the customers do. This could involve frequent moves of 30 miles or more in 1 day. Similarly, imagine the problems service managers of automobile repair shops and local electronic repair shops encounter in trying to keep up with these customers who move far and frequently.

For Army maintenance units, the problem of having long and frequent moves is not suppositional. If units are to remain operational, logistics support (including maintenance and supply of spare parts) must be in sync with the operational movement. Army maintenance units were designed and equipped to meet this challenge. They have repeatedly demonstrated their ability to move, and they will maintain this capability in the future. This article describes a new system that can make the job of moving easier. It has the capability to help Army maintenance units move more rapidly and more efficiently while requiring fewer vehicles. This system is not a breakthrough in technology. It represents the ability of a number of people to review a problem, imagine new ways to use available resources, and to get the job done.

Mobile Warehouses

This system started as the Field Pack-up Unit (FPU)-20, which consists of a 20-foot side-loading International Organization for Standardization (ISO) container, customized storage modules, and palletized loading system (PLS) flat racks. BG Claude Christianson, former Deputy Commanding General, 21st Theater Support Command (TSC), had the initial idea of using ISO containers as "mobile warehouses" for European theater operations. He tasked the Army Materiel Command Field Assistance in Science and Technology (AMC-FAST) Science Advisor to determine the feasibility of the mobile-warehouse concept.

During the feasibility analysis, it was discovered that two 20-foot ISO containers would fit onto one PLS flat-rack system, resulting in much more storage capability than the system available at the time (which used M129 vans). PLS flat racks could be made available, and there was a strong possibility that the combination of ISO containers and PLS flat racks would provide an efficient mobile-warehouse system.

Investigation of Army and Air Force use of ISO containers determined shortcomings each Service had encountered such as poor accessibility to items stored, shifting of cargo in transit, breaking of door handles and tie-downs, and vulnerability to theft. The investigation concluded that although the standard 20-foot ISO containers could potentially serve as mobile warehouses, an efficient system would require modifications to the basic container.

A 20-foot side-loading ISO container

Modifications

The first problem to be addressed was accessibility. Army maintenance units, like their civilian counterparts, cannot spare the time to shift around stock to locate an item stored behind others. Using a storage area with a broad front and shallow depth could alleviate this problem. A side-loading ISO container would provide the broad front and shallow-depth solution.

A search of commercial off-the-shelf equipment identified a unique 20-foot side-loading ISO container developed by Boh Environmental LLC, New Orleans, LA. This container design would solve the accessibility problem. Additionally, to address the problem of shifting and movement of cargo in transit, Boh LLC proposed construction of customized storage modules.

AMC FAST Project

A Project Summary Sheet (PSS) was submitted to AMC-FAST requesting that the FPU be established as an AMC-FAST project. The PSS described the need and identified the field proponent, potential solution, and expected results. This led to initiation of AMC-FAST Project No. 1000.

Once the project was approved, a technical team

convened to define the mission-area requirements, critical-design features, and evaluation criteria. The key performance features defined for the system included reducing the class 9 (repair parts) authorized stockage list (ASL) footprint, allowing accessibility from both sides, and reducing preparation time for deployment.

The requirements for FPU prototype concept evaluation were submitted to Boh LLC, which constructed a prototype unit made of 16-gauge steel. The unit was equipped with unique hidden-hinge doors with locks and customized storage modules. The prototype underwent extensive American Bureau of Shipping testing to confirm structural integrity. In fact, tests showed that the units could be stacked nine high.

The container was shipped, via C-5 aircraft, by the Air Mobility Command to Ramstein Air Base, Germany, and delivered to the 512th Maintenance Company at Spinelli Barracks, Manheim, Germany. There, a member of the contractor's product integration team provided a training session to the 512th Maintenance Company's Supply Support Activity (SSA) personnel.

Prototype Evaluation

The 512th Maintenance SSA was then ready to evaluate the prototype unit. The 3-month evaluation, which was designed to take place both in garrison and in the field, had the following objectives:

- To upload 70 percent of the target ASL into an FPU-20 equipped with 10 storage modules,
- To maximize storage space for the Class 9 ASL,
- To compare effectiveness of FPU with the current system,
- To make packing and deploying easier and less time consuming,
- To determine compatibility of FPU-20 with the PLS/materiel handling equipment (MHE), and
- To determine operational requirements for soldiers.

The FPU-20 met or exceeded all of the evaluation goals. The 512th Maintenance SSA transferred up to 81 percent of its target load from four M129 vans into one FPU-20 container. Throughout the evaluation, loading and unloading of the 10 modules took less than 30 minutes. During repeated movements between the field and garrison, there was no shifting of cargo, and the stored items were readily accessible at all times. No problems were encountered in the use of the PLS or its equipment.

A mobility analysis report provided by the 512th Maintenance Company to the 51st Maintenance Battalion stated that the PLS enables one soldier to load and unload heavy, palletized loads quickly and without assistance from other MHE. The report also pointed out that for 100-percent mobility of the 512th SSA, the modified table of organization and equipment provided 23 trucks (10 of which were supply vans). Only 10 trucks (8 components of the PLS) would be required when the FPU-20 is used in combination with the PLS.

In every aspect, the FPU-20 clearly demonstrated its capability to greatly improve maintenance unit mobility and operational efficiency while using less equipment. The decision to buy production models of the FPU-20 was not a cliffhanger. However, during the field evaluation, soldiers operating the equipment identified several factors and items that would make the system even better. These included reduction of overall container weight; installation of vents to improve heating, ventilation, and air conditioning; a grounding lug; an electrical wiring plug; and a device to lock travel bars of individual modules for high-security items. Boh LLC incorporated these improvements into lighter models of the prototype (FPU-20-1 and FPU-20-2) and began production.

FPU-8

Prior to the 21st TSC placing its production order for the FPU-20, it was learned that Boh LLC had developed the FPU-8. Although the FPU-8 was only 8 feet long, it had the same features as the FPU-20 and met the immediate needs of the 21st TSC. For example, five FPU-8s were used at five locations versus two locations for two FPU-20s. This increased the flexibility of operations, and the size of the FPU-8 enhanced air mobility. Based on the flexibility and air mobility of the FPU-8, the 21st TSC decided to purchase several FPUs. In particular, the 21st TSC received six FPU-8s. Additionally, three systems were sent to the 512th, and three were sent to the 5th Maintenance SSA. The 512th SSA is in the process of transferring its ASL to FPU-8s.

Conclusion

Many officials interested in the FPU-20's potential to improve Army logistics operations observed its evaluation. Among those favorably impressed was GEN John G. Coburn, AMC Commanding General. As a result of the FPU-20's successful evaluation, a number of actions were initiated to ensure that the FPU-20 and FPU-8 are available to units throughout the Army. Among these actions are the following:

- The Defense Logistics Agency has completed the national stock number assignment for the FPU and associated modules.
- Production models of FPU-20 and FPU-8 have been ordered for incorporation into the Army transformation effort taking place at Fort Lewis, WA.
- The Combined Arms Support Command has approved the Operational Requirements Document for the ASL Mobility System.

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